TESTING THE JOINT IMPACT OF FOREIGN AID AND FOREIGN DIRECT INVESTMENT ON OVERTIME ECONOMIC GROWTH OF PAKISTAN

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ABSTRACT

Foreign aid (FA) and foreign direct investment (FDI) a phenomenon of cold war in the post world war-II arena. The dollar recipient countries utilized these funds to augment their developmental activities, curtail balance of payment distortions, enhance the pace of economic growth etc. However, this study was, mainly, devised to check the joint effect of FA and FDI on overtime economic growth of Pakistan. In this regard, time series data over the period 1975-2010 including different support variables i.e. labor force and investment along with target indicators were rendered in the model for the assessment of relationship empirically. Moreover, properties of the data were, properly, diagnosed prior to employ ARDL estimation approach introduced by, Pesaran, and Shin (2000). The study found a robust and direct positive relationship between economic inflow of foreign capital and economic performance indicators, the inflow include foreign aid and FDI. However, the magnitude of foreign aid impact was explored considerably low as compared to FDI. In the end, it is suggested that though impacts of capital inflows are positive but economies must rely upon the indigenous resources to promote development rather depending on external factors.

1. INTRODUCTION

Countries classified under developing block of the world face the constraint of scarce financial and economic and financial for meeting with challenge of sustained economic growth. With rising macroeconomic imbalances among the developing world, investment needs to increase growth performance at high speed. A number of development programmes are launched by donor and multilateral funding agencies[1] to make better economic activities and achieve high growth rates in recipient countries (Ndambendia and Njoupouognigni, 2010). Consequently there is a shortfall of resources in the developing world which leads to resources inflow to meet deficiency of resources and fill two gaps, i.e. saving investment gap[2] and import export gap (Ghulam, 2005).

These funds flow either in foreign aid[3] form or foreign direct investment, from rich nations to poor nations to trim down budget deficit, alleviating poverty, and help promoting the trade activities among the nations along with ensuring the overall macroeconomic stability (Khan, 2007). As a classical example, a number of aid recipient

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[1] International Monetary Fund (IMF), World Bank (WB) and United Nation (UN).

[2] Due to low incomes, savings and investment remain low.

[3] Aid inflow is classified into three broad categories, firstly, official development assistance (ODA) which comprise of largest share of aid and given to middle and low income countries. Secondly, donated by countries of high per capita income to countries which have been formerly a part of Soviet Union. Thirdly, voluntary aid given by non government organizations and charity foundations (Radelet, 2006).

countries[4] have extracted numerous benefits while going through their development stages, these countries experienced relatively high growth rates after proper utilization of capital inflows (Mosley, 1987).

Foreign aid[5] is a channel through which financial assistance enters from developed and rich nations to developing and poor countries of the world. Theoretical and empirical literature on capital inflow provides two contrasting arguments: A strand of studies including Craig Burnside and David Dollar (1997) confirms a positive correlation between official Developments Assistance [6] and development activities. Furthermore it is suggested that aid helps to maintain structural adjustment programmes and macroeconomic stability. A World Bank Report asserts that international donor agencies has brought innovations in agricultural sector, enhanced investment activities, and helped millions of poor people all over the world to improve their lives. Another point of view regarding its impact is about the ineffectiveness of these resources for enhancing economic development and economic growth. The major reasons accredited to this inadequacy are mis-governance of government, corruption and ill utilization of resources in these countries.

Since the goal of developing nations is capital accumulation and achieving high welfare and growth rates, so foreign direct investment can also be considered as a supplement for foreign aid in third world countries. Ericsson and Irandoust (2005) state that foreign direct investment is an additional source of financing and serves as a supplement to savings and foreign aid. According to UNCTAD (2006) FDI is a source for employment generation, catalyst for high productivity and exports, a channel of technological spillover, and an element to affect directly the long-term development activities for the countries placed in third world countries. Bloomstrom and Wang (1992) mentioned benefits of foreign direct investment including the technological spillover as the major one, the maximum benefits are through inflow in manufacturing sector and services sector.

This study is distinguished in recent literature for Pakistan because it tests the joint impact of capital inflow either through aid programmes or foreign direct investment programmes on economic development variables. It is designed to estimate the short run and long run link between the variables of interest mentioned, and we also tried to find the causal direction between foreign aid, foreign direct investment and economic growth. The brief organization is given as: section II presents the brief overview of previous studies conducted theoretically as well as empirically for foreign aid foreign direct investment and economic growth. Section III includes methods and materials linked with this study. findings are reported in section IV while concluding remarks are reported in last section V.

1.1 FDI and Foreign Aid in Pakistan

With the introduction of reforms and shift to market oriented economy Pakistan has emerged among one of the leading nations with high growth rate in South Asian region (Iqbal *etal*, 2010). Pakistan faced scarcity of financial resources; the resource inflow in the form of foreign aid has been started with the independence in different forms[7]. During the era of 1960s and 1970s Pakistan has been one of the largest aids receiving country in south Asian region

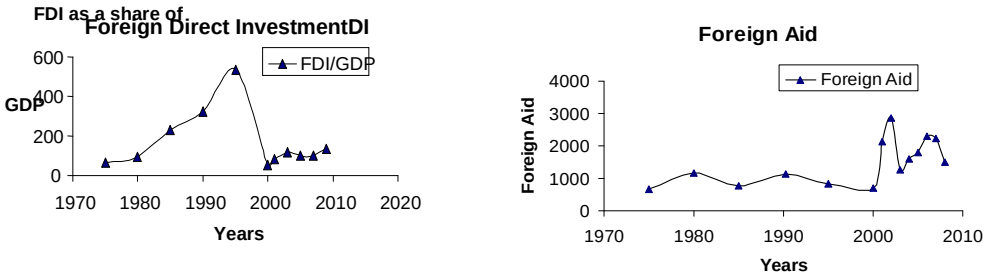
[4] Among them include Indonesia, Ghana, Vietnam and Uganda.
[5] Bandow (1985) states that takes its roots in the history from Marshall Plan for reconstruction and rehabilitation; it was built to accomplish the resource requirements of Western European economies
[6] Official Development Assistance and Foreign Aid are treated as synonyms here.
[7] Project as well as non project aid.

(Khan, 2007). With emergence of economic reforms, Pakistan introduced reforms to enhance and encourage foreign direct investment in the country during the decade of eighties and nineties.

Chenery and Strout (1966) argued that developing countries of the world face shortage of savings to meet their investment requirements. So the look for the resources coming from rest of the developing world. Resources inflow takes place in both forms i.e. in the form of foreign aid and foreign direct investment. Foreign direct investment is enhanced through introducing market reforms of liberalization. Policies are implemented which are more investment friendly and for the encouragement of competition. A time period of eighties and nineties in Pakistan is characterized by adoption liberalization programmes of trade and investment regime. Restrictions on capital inflow were removed to increase competition and encourage foreign investors. These policies increased greatly the share received in the form of FDI by Pakistan during last twenty years. So the high FDI to GDP ratio has been observed during the post liberalization period (Khan, 2007).

The decades of 60s and 70s have been significant because Pakistan achieved high aid during these periods, but this aid reduced the late 70s[8]. But further aid seemed to be consisting of loans rather than grant or grant type loans. Share of aid to GDP dramatically increased due to entering the 'War against Terrorism'. There was about 7times high aid available to Pakistan. The high aid received by Pakistan during different time periods could not be utilized for development purposes rather it remained within the hands of elites and politicians and there has also been debt problem due to conversion of aid to grant. Figures 4 below highlights the trends of foreign aid and foreign direct investment over the period 1970 to 2010. A world Development Report asserts that volume of funds available to developing countries in the form of FDI increased considerably during mid eighties to 2000. It rose from 0.2 billion US dollars to approximately 60 billion US dollars in Pakistan over 1990 to 2009 (WDI Indicators 2009).

Figure 1: Statistics Showing Trends of FDI and ODA in Pakistan



Source: Pakistan Economic Survey, Various issues, and world development indicators.

2. REVIEW OF LITERATURE

2.1 *Foreign Aid*

A number of research studies discussed the role played by aid inflows for the growth of development and economic growth. Among them Easterly (2003) presented a framework for theoretical analysis and also conducted a panel analysis to find the direction and nature of link for aid and growth nexus. Along with presenting the theoretical

[8] Pakistan nuclear policy caused this decline in receiving aid by US.

rationale behind its effectiveness on economic growth it also found a positive and robust link of economic growth and foreign assistance. On the same lines Durbarry *etal.* (1998) applied both panel and cross sectional techniques and found that aid accelerates economic growth but its effectiveness varies over the time depending upon its volume, geographical location and classification of country on the basis of income level. It suggested that these fruits are conditioned upon stable macroeconomic policy environment. Developing countries receive the financial resources in the form of foreign direct investment, foreign aid and official assistance. A common feature possessed by it suggested that a lack of investment friendly environment discourages inflow of FDI and these economies mostly depend on foreign aid.

Ghulam (2005) studied the same case and found the effectiveness of official development assistance for the growth performance of Pakistan over the 1960 to 2002. It asserts that foreign aid helped to boost economic growth through its positive and supportive impact on all sectors of the economy. It also added that good fiscal and monetary policy is an important determinant of its effectiveness on growth. Ekanayake *etal*. (2003) also checked the impact of official development assistance for the economic growth for a sample of 85 underdeveloped countries[9] over the period 1980 to 2007. It applied panel data techniques and found mixed evidence on tested link between economic growth and assistance via development funding agencies, these results were country specific, according to which all countries get benefits different from other countries depending upon economic structure and special economic features.

For six African countries Malik (2008) applied cointegration analysis and found that short run effects of investment, trade openness, foreign aid have been positive while the longrun effects were found to be negative for foreign aid on economic performance. Bhandari *etal.* (2007) studied the joint impact of foreign aid and foreign direct investment for the sample of European countries[10]. It used pooled data set with annual frequency of data set over a long range of time comprising of 1993 to 2002 and applied panel technique of fixed effects. Major findings include effectiveness of both forms of capital inflows for economic growth. It included that FDI inflow is an important determinant of economic sector performance while foreign aid did not play an important role to enhance growth for the sample of this country.

Ndambendia (2010) investigated the link between foreign direct investment, foreign aid and economic growth for a sample of 36 African counties. Using a data set for 1980 to 2007 this study applied dynamic fixed effect techniques and found a positive and robust link of both foreign direct investment and foreign aid for the growth of these countries. Policy implication suggested that countries are required to depend on internal factors for enhancing growth rather than relying on external sector. An empirical analysis conducted by Nyoni (1997) studied the impact of foreign aid on economic growth of Tanzania. Economic indicators included export performance, exchange rate, government expenses and economic growth. Co integration methods for finding the long run link was used and short run link is evaluated through Error Correction methods Findings suggested that government spending cause high value of exchange rate, while foreign aid inflows cause devaluation and depreciation of local currency. Major policy implications suggested that foreign assistance is required to be utilizing for the productive sector of economy. Furthermore it suggested that liberalization and openness of economy causes a positive impact in longrun.

[9] Included sample form the regions of Africa, Latin America, Asia and Caribbean Countries
[10] Czech Republic, Estonia, Hungary, Latvia, Lithuania.

According to Ishfaq (2004) aid in Pakistan is considered as a key determinant of financing, implementing and entertaining different socio economic development programs. However, the accessible external aid has not always been utilized in formulation and implementation of effective programs, while a sensible use of external assistance has been instrumental in achieving accelerated development of many less developed countries of the world. Many nations have failed to use it optimally as a result such countries have accumulated significant amount of debt with not many benefits in terms of economic growth and living standard for the poor. The point of view is that foreign aid has adverse effect on the development of recipient countries**.** Khaldi (2008) selected a time period 1990 to 2005 and studied the impact of trends of foreign aid for economic development of Jordan. Statistical analysis revealed that capital inflow in the form of foreign aid has positive direct effect on economic growth.

2.2 Foreign Direct Investment

Miankhel *etal*. (2009) regressed the foreign direct investment, and exports on economic growth for South Asian and emerging economies[11]. It suggested a causal link exists between exports and economic growth while in longrun FDI is a driving force to enhance economic growth in Pakistan and India. Multivariate VAR and Error correction Models (VECM), techniques found mixed but country specific outcomes. There is an increasing consensus among economists that technological spillover can enhance economic growth by the element foreign direct investment. An empirical analysis by Khan (2007) tested the new direction of relationship through introducing the financial sector development performance for Pakistan. A time series data ranging over 1972 to 2005 with annual frequency was used it applied Autoregressive Distributed Lag cointegration and found that benefits to economic growth can be achieved through improvement of financial sector performance in the host countries as it attract more funds from developed countries for investment.

Panel data techniques have also been tested by Zhang (2006) to test for growth driven by FDI for the China. This study illustrated the possible channels through which FDI causes positive as well as negative impacts on economic growth. It utilized provincial data set of inland and coastal areas over the period 1992-2004 and found that foreign direct investment has positive impacts on economic growth and these effects have been found more robust for the coastal areas of China. Causal link between foreign direct investment and economic growth is also important in literature. A study conducted by Iqbal *etal.* (2010) tried to find the causal link between openness to trade, foreign direct investment and economic growth for Pakistan. it utilized quarterly data set over the period 1998-2009 and applied Vector Auto Regressive (VAR) model to test the existence of longrun relationship. While direction of causality is found by multivariate VECM. Bidirectional causality between trade sector growth and economic FDI is detected, while a positive and robust link has been found between FDI and trade promotion in long run.

Kim and Bang (2008) studied the same link between FDI and economic growth for Ireland. An annual time series data set over the period 1975-2006 has been utilized with Auto Regressive Distributed Lag (ARDL) methods to find the longrun relationship. Empirical results found statistically significant effects of foreign direct investment on economic growth in short run as well as longrun. Granger causality results indicated that foreign direct investment leads economic growth. Foreign direct investment helps creating job opportunities in host countries and supplements domestic financial resources, enhances competition along with technological spill over. In the same context another effort has been put forward by Athukorala (2003) to check the effects of FDI on economic growth indicators of Sri Lanka. Annual time series data set over the period 1959-2002 has been used with applying econometric techniques of

[11] Emerging economies include India, Pakistan, Chile, Malaysia, Mexico and Thailand

cointegration and ECM. The findings have been little ambiguous because net effect of FDI on economic growth was not very much strong due to corruption, bad law and order situation and poor governance structure.

for Western European and US economy Katarina and John (2004) explored the dimensions of foreign direct investment and their impact for economic growth. Bayesian analysis is applied to find the nature of relationship between FDI and economic growth. This study does not support any significant relationship between these variables for Transition economies.

3. METHODOLOGY AND DATA

3.1 Data

On the basis of data availability this study used annual set over the period 1980-2010. The data format is annual time series consisting on Growth rate of GDP, foreign direct investment in millions US$, foreign aid in million US$, labor force growth rate, growth rate of share of investment in GDP. Data has been taken from International Financial Statistics (IFS), various issues of Pakistan Economic Survey, and World Development Indicators.

3.2 Methodology

Here an effort is made to explore the interrelationship between foreign direct investments, foreign aid and economic growth for Pakistan including labor, and capital. Auto Regressive Distributed Lag (ARDL) methodology is used for estimation on using a software package[12]. First step of estimation involves testing the time series properties of data (i.e. to find the order of integration) using Augmented Dicky Fuller (ADF)[13] test. Second stage tests the existence of long run relationship using ARDL[14] bound testing approach of cointegration proposed by Pesaran *et a.l* (2001). The methodology used here possesses certain characteristic features including:

(i) It is most suitable method of cointegration for small sample data set as also mentioned by Ghatak and Siddiki (2001), (ii) It does not require all variables to be integrated of same orders, variables with different orders of integration can be used for estimation or this methodology does not depend upon the unit root properties of dataset. This ARDL approach consists of two steps, in first step F-test is applied to find out the existence of long run relationship and step two estimates short run and long run estimates of the model, short run elasticities of the model are found by ECM representation of the model. ECM version is used to calculate the speed of adjustment to equilibrium moreover, here stability test of CUSUM and CUSMSQ, and Jarque Berra normality tests are also applied. The error correction form of ARDL model to be estimated can be written in this form:

$$\Delta \ln(RY) = \alpha_0 + \sum_{i=1}^{p} \phi_i \Delta \ln(RY)_{t-i} + \sum_{i=0}^{p} \theta_i \Delta \ln(FDI)_{t-i} + \sum_{i=0}^{p} \lambda_i \Delta(FA)_{t-i} + \sum_{i=0}^{p} \gamma_i \Delta \ln(SI)_{t-i}$$

$$+ \sum_{i=0}^{p} \psi_i \Delta \ln(LAB)_{t-i} + \upsilon_1 \ln(RY)_{t-1} + \upsilon_2 \ln(FDI)_{t-1} + \upsilon_3 \ln(FA)_{t-1} + \upsilon_4 \ln(SI)_{t-1} + \upsilon_5 \ln(LAB)_{t-1} + \nu_t$$

[12] Eviews 5.0

[13] It is an updated and modified form of Dicky Fuller test.

[14] ARDL methodology is introduced by Pesaran and Shin (1996); Pesaran and Pesaran (1997); Pesaran and Smith (1997).

Where *ln(RY), ln(FDI), ln(FA), ln(SI)* and *ln(LAB)* are natural logs of real GDP, foreign direct investment, official development assistance, share of investment and labor force respectively. *p* is optimal lag length and Δ is first difference operator, ϕ_i, θ_i, λ_i, γ_i, and ψ_i are representing the short run effects of variables while $\upsilon_1, \upsilon_2, \upsilon_3, \upsilon_4,$ and υ_5 are to represent the longrun elasticities.

4. DISCUSSION ON FINDINGS

This study is an empirical effort to examine the causal link and long run relationship, this study conducted Autoregressive distributed Lag (ARDL) model for Pakistan over the period 1975-2010. Pre requirement of this methodology is testing for unit root. Augmented Dicky Fuller (ADF) unit root test is applied to meet this purpose. Table 1, below reports the results of unit root test.

Table 0: Unit Root test Results

Variables	*ADF at Level*	*ADF at First Difference*	*Decision*
L(RY)	-0.6997	-3.5777*	I(1)
L(FDI)	-0.1459	-4.5661*	I(1)
L(FA)	0.4277*	-4.0286*	I(1)
LAB	2.1628*	-2.9159*	I(0)
SI	0.12272	-3.7497	I(1)

Note: Null hypothesis of testing unit root states that series is non stationary or contains a unit root. *shows significance at 5% level of significance.

The results given show that real GDP, Share of FDI in GDP, Share of Foreign aid (FA) in GDP and Share of investment (a proxy to capture the effects of capital stock) in GDP are non stationary at their level and become stationary at first difference, while labor force (LAB) is non stationary at level. Unit root test provides mixed results which provides with a justification that we can use ARDL cointegration. Now to find the long run relationship we apply cointegration test introduced by Pesaran etal (2001), since this data set is relatively small arbitrarily one is chosen as lag length. Cointegration test results are reported below in Table 2.

Table 2: Bound Cointegration Test

F-Statistics	Probability
10 (4.01)	0.00001

Note: values in small brackets are the critical values which are used for bound cointegration test, taken from Pesaran, *et al.* (2002). Null hypothesis is existence of no cointegration, which is rejected if the calculated value of F-stat is higher than critical value. This estimation considers unrestricted intercept, no trend and number of regressors equal to 3.

Cointegration test results are reported in Table 2 above. Here calculated F-stat is greater than critical value, so we reject null hypothesis, concluding that there is an evidence of long run relationship. After establishing the long run relationship, next step is finding short run as well as longrun estimates of the model. Table 3 below is showing short run and long run estimates calculated through eviews software packages. These results state that in short run foreign direct investment has negative effect, while this effect is positive for foreign aid. The signs possessed by coefficients of labor force and share of investment in GDP are negative and positive respectively which supported theoretically. Long run estimates are calculated using short run coefficients and long run relationship is given below in equation 4.1. Long run equation states a significant positive effect of foreign direct investment, as the inflow of FDI to developing nations provides a supplement for domestic credit and introduces new technology along with providing better employment opportunities to host country. On the contrary a negative and significant effect of foreign aid in long run is observed, because of poor disbursement of aid received, inefficient policies regarding inflation, trade openness, large and inefficient governance body of government (Whitaker, 2006). Labor force and investment have negative impacts, Pakistan is a developing country and characterized by surplus labor. Further increase in labor force causes negative impact on economic growth. Negative impact of capital stock is because of inefficient policies persued by government. Short run diagnostic tests are applied and results are reported in Table 3. Here a reasonable value of R^2_{adj} is indicating that there is 67% variation in dependent variables explained by independent variables in the model. There is also no incidence of autocorrelation and F-stat shows that overall model is best fitted. Coefficient of LRY(-1) is negative, and it is adjustment coefficient indicating 20% adjustment in longrun equilibrium, if disturbed. Its negative sign also confirms cointegration among the variables.

Table 3: Short run and Long run Coefficients

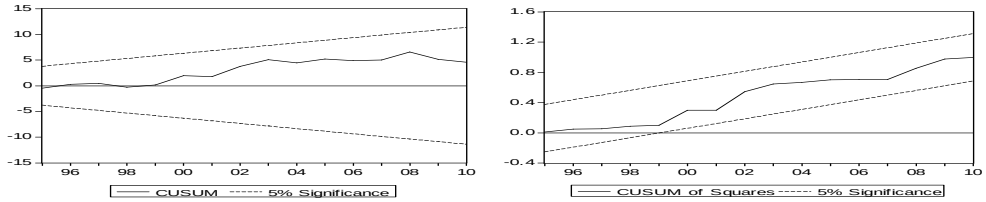
Variables	Coefficients	Short run Diagnostic Tests	
C	-0.09		
D(LFDI)	- 0.34**	R^2_{adj}	0.67
D(FA)	0.15***	Serial Correlation LM Test	1.4768(0.1193)
D(LSI)	0.005*	Heteroscedisticity Test	2.3356(0.0413)
D(LAB)	-0.256	Ramsey Reset Test	1.3876(0.1988)
LRY(-1)	-0.20	Jarque-Bera Test	1.5677(0.3675)
LFDI(-1)	-0.15***	DW stat	2.06
L(FA(-1))	0.07***	F- Stat	10.15
LAB(-1)	0.568	S.E of Regression	0.02
LSI(-1)	0.006*		

Note: *significance at 1% level, **significance at 5%level. ***significance at 10% level.

Longrun Equation

*LY = 0.45 + 0.75 (FDI) *** – 0.35 (FA) *** – 2.84 (LAB) – 0.03 (LSI)*……..(4.1)*

Figure 2: Graphs of CUSUM and CUSMSQ for stability of Parameters



4.3 Short run Causality

After discussing the estimation results for each country now comes the issue of short run causality test based on VECM. Table 5 below reports the short run causalities among economic growth indicator real GDP, foreign direct investment (FDI), Foreign Aid (ODA), share of investment LSI and labor force (LAB) deposit rate for Pakistan. Results are summarized as follows: There is no evidence of causality in any direction between foreign aid (ODA), foreign direct investment (FDI) and growth indicators for Pakistan, we found an evidence of one way- causality between financial depth and economic growth that runs from economic growth to foreign aid.

Table 4: Results of Multivariate VECM Causality

	Independent variable				
	ΔLRGDP	**ΔL(FDI)**	**ΔL(K)**	**ΔL(ODA)**	**ECT_{t-1}**
ΔLRGDP	-	1.7(0.42)	1.12(0.57)	24.5(0.00)	-0.74**(-2.13)
ΔL(FDI)	3.65(0.161)	-	1.97(0.34)	7.31(0.03)	1.432(0.213)
ΔL(K)	9.91(0.007)	17.6(0.01)	-	0.533(0.76)	-0.31(-.8238)
ΔL(ODA)	10.75(0.005)	0.01(0.99)	2.41(0.30)	-	3.7621(0.135)

Note**:** *, ** and *** represent significance at 1%, 5% and 10% levels respectively. We normalized the cointegration vector on GDP coefficient and derivedd $ECT_{t-1.}$ *t-statistics* are given and values in parenthesis show probabilities for F-*statistics,* respectively.

5. CONCLUSION

In this empirical analysis we tried to examine the relationship between foreign direct investment, foreign aid and economic growth for Pakistan specifically it is aimed to test the effectiveness of external factors. This study considered labor force and capital stock as internal factors while using neoclassical growth theory it incorporates external factors like official development assistance and foreign direct investment, to explain the changes in real GDP. An annual time series data set over the period 1970 to 2010 is utilized with application of recent econometric methodology of Auto Regressive Distributed Lag (ARDL). Recent data techniques are applied to diagnose and check the time series properties of data; later estimation was carried out where Short run and longrun elasticities are estimated.

Our results state that capital stock and foreign direct investment are important factors which affect significantly and positively in short run as well as longrun, while foreign aid seems to be an unimportant factor for economic growth in long run because of its inefficient utilization in developing countries, poor financial services along with infrastructure, the problem of bad governance and fiscal policy. Labor force had negative impact in short run as well as longrun which can be attributed to the reason that Pakistan is a developing nation and it is endowed with surplus labor. More increase in labor force further causes negative impact on economic growth. Capital stock has positive effect in short run but these effects are negative in longrun which is not supported theoretically, it is because of inefficient policies pursued by government. Our findings are consistent with the findings of Bhandari *etal. (2007),* Ndambendia (2010) and partially in line with Uphadhya and Kamal (2003).

A bidirectional Causality runs between foreign aid and economic growth. Official development assistance is causing foreign direct investment as well. So on the basis of overall results it is recommended that internal factors must be tried to achieve stability and developing countries should improve their infrastructure, fiscal situation and investment at domestic level to approach high economic growth index. Furthermore it is required that economies concentrate on their own resources rather than relying on financing from external sources to attain self sufficiency and economic growth

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